

WHAT IS CLAIMED IS:

1 1. A method of delivering video via a switched communication network comprising:
2 transmitting one or more program streams from a head end node to one or more egress
3 nodes via the switched network; and

4 inserting one or more advertisements into the one or more program streams at the one or
5 more egress nodes for delivery to individual subscribers such that a particular subscriber receives
6 a program stream with an advertisement that corresponds to demographic characteristics of that
7 particular subscriber.

1 2. The method according to claim 1, further comprising the step of inserting splice
2 points in the one or more program streams at the head end node.

1 3. The method according to claim 2, wherein inserting one or more advertisements
2 comprises splicing an advertising stream with a program stream, wherein the advertising stream
3 includes the one or more advertisements.

1 4. The method according to claim 3, wherein the step of splicing further comprises:
2 responsive to a command to begin splicing, identifying a splice point in the advertising
3 stream;

4 buffering frames after the splice point in the advertising stream;
5 identifying a splice point in the program stream;
6 switching to the advertising stream; and
7 outputting an ad-inserted stream that includes frames from the program stream and
8 advertising stream,

9 whereby the program stream and advertising stream are adaptively synchronized by
10 aligning the splice points to enhance the quality of video transmission.

1 5. The method according to claim 1, wherein N program streams are transmitted via
2 the switched communication network and wherein N x M ad-inserted streams are created at the

3 one or more egress nodes, where N and M are integers and where M represents the number of
4 demographic groupings of the individual subscribers.

1 **6.** The method according to claim 5, wherein the switched communication network
2 is an ATM-based network and wherein N program streams are encapsulated in Internet Protocol
3 (IP) packets for transmission in the ATM-based network.

1 **7.** The method according to claim 6, wherein the step of transmitting comprises
2 multicasting the program streams via the switched communication network.

1 **8.** The method according to claim 7, further comprising the step of transmitting the
2 ad-inserted streams to subscribers via a digital subscriber line (DSL) interface.

1 **9.** The method according to claim 7, further comprising the step of transmitting the
2 ad-inserted streams to subscribers via an Ethernet interface.

1 **10.** The method according to claim 1, wherein the program streams supplied by the
2 head end node include program streams provided to the head end node from a remote source and
3 program streams provided to the head end node from a local source.

1 **11.** The method according to claim 1, wherein the step of inserting one or more
2 advertisements includes:

3 receiving subscriber management information; and

4 selecting a particular advertisement based on the subscriber management information;

5 and

6 retrieving the particular advertisement at the one or more egress nodes

1 **12.** In a video distribution network including a head end node, one or more egress
2 nodes, a service management system, and a switched communication network, wherein the head
3 end node supplies one or more program streams via the switched communication network to the
4 one or more egress nodes, a system for delivering video comprising:

5 at an egress node,

6 a router for receiving the one or more program streams,
7 a storage element for storing advertisements, and
8 a splicer element for inserting one or more of the stored advertisements into the
9 one or more program streams for delivery to individual subscribers,
10 wherein a particular subscriber receives a program stream with an advertisement that
11 corresponds to demographic characteristics of that particular subscriber.

1 **13.** The system according to claim 12, wherein the one or more program streams
2 include splice points and wherein the splicer element splices an advertising stream with a
3 program stream, wherein the advertising stream includes one or more stored advertisements.

1 **14.** The system according to claim 13, wherein the splicer element comprises:
2 a plurality of input processors, one of the plurality of input processors receiving the
3 program stream and another of the plurality of input processors receiving the advertising stream;
4 a plurality of data buffers, each of the plurality of data buffers coupled to a corresponding
5 one of the plurality of input processors; and
6 at least one output processor coupled to the plurality of data buffers,
7 wherein, responsive to a splice point being identified in the advertising stream, one of the
8 plurality of data buffers stores frames after the splice point in the advertising stream, and
9 wherein, responsive to a splice point being identified in the program stream, the at least one
10 output processor switches to the advertising stream so that a single bitstream is provided as
11 output that includes frames from the program stream and advertising stream.

1 **15.** The system according to claim 12, wherein N program streams are distributed via
2 the switched communication network and wherein $N \times M$ ad-inserted streams are created at the
3 egress node, where N and M are integers and where M represents the number of demographic
4 groupings of the individual subscribers.

1 **16.** The system according to claim 15, wherein the switched communication network
2 is an ATM-based network and wherein N program streams are encapsulated in Internet Protocol
3 (IP) packets for distribution via the ATM-based network.

1 **17.** The system according to claim 16, wherein the program streams are distributed
2 via multicasting in the switched communication network.

1 **18.** The system according to claim 17, wherein the ad-inserted streams are distributed
2 to subscribers via an interface selected from the group consisting of a digital subscriber line
3 (DSL) interface and an Ethernet interface.

1 **19.** The system according to claim 12, wherein the service management system
2 provides subscriber management information to the egress node and, responsive to the subscriber
3 management information, the egress node selects and retrieves a particular advertisement from
4 the storage element based on the subscriber management information.

1 **20.** A system for delivering video via a switched communication network comprising:
2 a head end node for transmitting one or more program streams via the switched network;
3 and

4 at least one egress node for receiving the one or more program streams, the egress node
5 including a splicer element for inserting one or more advertisements into the one or more
6 program streams at the egress node for delivery to individual subscribers, such that a particular
7 subscriber receives a program stream with an advertisement that corresponds to demographic
8 characteristics of that particular subscriber.

1 **21.** The system according to claim 20, wherein the head end node comprises:
2 an encoder for receiving and encoding the program streams;
3 an encapsulator for converting the encoded program streams into a format for
4 transmission via the switched communication network; and
5 a service management system in communication with the encoder, the encapsulator and
6 the switched communication network for provisioning and managing distribution of video and
7 demographically-targeted advertising.

1 **22.** The system according to claim 21, wherein the head end node further comprises a
2 storage element for storing encoded program streams for time-delayed delivery.